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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,075

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Hindrik Willem De Vries

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EXAMINER

ALEMU, EPHREM

ART UNIT

PAPER NUMBER

2821

MAIL DATE

DELIVERY MODE

11/10/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/584,075	<b>Applicant(s)</b> DE VRIES ET AL.	
	<b>Examiner</b> Ephrem Alemu	<b>Art Unit</b> 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Terminal Disclaimer***

1. The terminal disclaimer filed on 8/25/2010 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent Nos. 7,791,281 and 7,399,944 have been reviewed and is NOT accepted because of the following reasons:

- (i) It is directed to a particular claim or claims, which is not acceptable, since "the disclaimer must be of a terminal portion of the term of the entire [patent or] patent to be granted." See MPEP § 1490; and
- (ii) The language 35 USC 154-156 is unacceptable because 155 and 156 do not define the term of the patent, it should read 35 USC 154 and 17.

### ***Double Patenting***

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re*

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*Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims **1-5, 10-14** and **21** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 7-9, 10-13, 17 and 24 of U.S. Patent No. 7,791,281 in view of Roth (US 5,938,854, submitted by applicants').

With respect to claim 1, the instant application claims a method of removing contaminants from a surface of a substrate by subjecting said substrate surface to an atmospheric pressure glow plasma generated in a discharge space (corresponds with "a method for controlling a glow discharge plasma in a gas or gas mixture under atmospheric conditions in a plasma discharge space as claimed in claim 1 of the issued patent '281), comprising one or more electrodes, wherein said plasma is generated by applying an alternating plasma energizing voltage to said electrodes causing a plasma current and a displacement current, and wherein said plasma is stabilised by controlling said displacement current during plasma generation (corresponds with "comprising at least two spaced electrodes, wherein at least one plasma pulse

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is generated by applying an AC plasma energizing voltage to said electrodes causing a plasma current and a displacement current, said at least one plasma pulse comprising an absolute pulse maximum, said method comprises the step of controlling said energizing voltage such that a relative decrease of said displacement current is provided before said pulse maximum” as claimed in claim 1 the issued patent '281).

The issued patent '281 does not specifically mention the method for controlling a glow discharge plasma in a gas or gas mixture under atmospheric conditions in a plasma discharge space is for removing contaminants from a surface of a substrate such that modification of properties of said substrate surface is prevented.

Roth discloses a well known apparatus including a pair of electrodes for removing contaminants from a surface of a workpiece to provide a cleaned workpiece (Fig. 1; Col. 5, lines 5-24).

Therefore, given the method for controlling a glow discharge plasma in a gas or gas mixture under atmospheric conditions in a plasma discharge space as claimed in claim 1 of the issued patent '281, removing contaminants from a surface of a substrate such that modification of properties of the substrate surface for being prevented deemed to be obvious by controlling the displacement current using a well known apparatus including at least two electrodes as is evidenced by Roth.

As to the further limiting claims as claimed in claims 2-5, 10-14 and 21 of the instant application, given, the method claims as claimed in claims 2-5 and 7-9 as claimed in the issued patent '281 in view of Roth, the further limiting claims as claimed in 2-5, 10-14 and 21 of the instant application would have been deemed to be obvious for at least controlling the energizing

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voltage such that a relative decrease of the displacement current is provided before the pulse maximum.

4. Claims **22-25** and **28** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 10-13, 17, 19-23 and 24 of the issued patent '281.

Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons:

With respect to claim 22, the instant application claims an apparatus for removing contaminants from a surface of a substrate by subjecting said substrate surface to an atmospheric pressure glow plasma, comprising a discharge space, wherein said discharge space comprises one or more electrodes as claimed in claim 1 (corresponds with “device for treating a surface of a substrate, comprising an apparatus for controlling a glow discharge plasma in a discharge space having at least two spaced electrodes” as claimed in claim 24 of the issued patent '281), means for generating said atmospheric pressure glow plasma in said discharge space using said electrodes, wherein means for generating said plasma comprise means for applying an AC plasma energizing voltage to said electrodes for causing a plasma current and a displacement current (corresponds with “means for introducing in said discharge space a gas or gas mixture under atmospheric conditions, a power supply for energizing said electrodes by applying an AC plasma energizing voltage to said electrodes for generating at least one plasma pulse and causing a plasma current and a displacement current, said at least one plasma pulse comprising an absolute pulse maximum” as claimed in claim 24 of the issued patent '281), wherein said apparatus further comprises means for controlling said displacement current during plasma generation for stabilising said plasma (corresponds with “means for controlling said plasma, said

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means for controlling said plasma are arranged for controlling said energizing voltage such that a relative decrease of said displacement current is provided before said pulse maximum” as claimed in claim 24 of the issued patent ’281). As to the further limitation of claim 22 “such that modification of properties of said substrate surface is prevented” deemed to be obvious in view of the issued patent ’281 since the displacement current is controlled during the plasma generation in a manner claimed in claim 24 of the issued patent ’281. As to the further limiting claims as claimed in claims 23-25 and 28 of the instant application, given, the device or apparatus claims as claimed in claims 10-13, 17, 19-23 and 24 of the issued patent ’281, the further limiting claims as claimed in claims 23-25 and 28 of the instant application would have been deemed to be obvious for at least controlling the energizing voltage such that a relative decrease of the displacement current is provided before the pulse maximum.

5. Claims **1, 6-9, 15-20, 22-24, 26, 27** and **29** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 14 of U.S. Patent No. 7,399,944. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons:

With respect to claim 1, the instant application claims a method of removing contaminants from a surface of a substrate by subjecting said substrate surface to an atmospheric pressure glow plasma generated in a discharge space (corresponds with a method for controlling a glow discharge plasma in a gas or gas mixture under atmospheric conditions for performing surface cleaning in a manner claimed in claims 1 and 14 of the issued ’944 patent), comprising at least two spaced electrodes comprising one or more electrodes, wherein said plasma is generated by applying an alternating plasma energizing voltage to said electrodes causing a plasma current

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and a displacement current, and wherein said plasma is stabilised by controlling said displacement current during plasma generation (corresponds with “generating at least one plasma pulse by applying an AC plasma energizing voltage to the at least two spaced electrodes thereby causing a plasma current and a displacement current, said at least one plasma pulse including an absolute pulse maximum, and controlling the AC plasma energizing voltage such that a relative decrease of the displacement current is provided after the pulse maximum” as claimed in claim 1 of the issued '944 patent). With regard to the limitation “such that modification of properties of said substrate surface is prevented” deemed to be obvious in view of '944 issued patent since the displacement current is controlled during the plasma generation in a manner claimed in claim 1. As to the further limiting claims as claimed in claims 6, 7, 8, 9, 15, 16, 17, 18, 19 and 20 of the instant application, given, the method claims as claimed in claims 2, 5, 6, 7, 15, 16 and 37 of the issued '944 patent, the further limiting claims as claimed in claims 6, 7, 8, 9, 15, 16, 17, 18, 19 and 20 of the instant application would have been deemed to be obvious for no other reason than controlling the energizing voltage such that a relative decrease of the displacement current is provided after the pulse maximum.

With respect to claim 22, the instant application claims an apparatus for removing contaminants from a surface of a substrate by subjecting said substrate surface to an atmospheric pressure glow plasma, comprising a discharge space, wherein said discharge space comprises one or more electrodes as claimed in claim 1 (corresponds with “system for controlling a glow discharge plasma in a discharge space having at least two spaced apart electrodes” as claimed in claim 22 of the issued '944 patent), means for generating said atmospheric pressure glow plasma in said discharge space using said electrodes, wherein means for generating said plasma



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comprise means for applying an AC plasma energizing voltage to said electrodes for causing a plasma current and a displacement current (corresponds with “gas inlet assembly introducing in said discharge space a gas or gaseous mixture under atmospheric conditions, a power supply for energizing said electrodes by applying an AC plasma energizing voltage to said electrodes for generating at least one plasma pulse and causing a plasma current and a displacement current, said at least one plasma pulse comprising an absolute pulse maximum” as claimed in claim 22 of the issued '944 patent), wherein said apparatus further comprises means for controlling said displacement current during plasma generation for stabilising said plasma (corresponds with “means for controlling said plasma, wherein said means for controlling said plasma are arranged for controlling said an AC plasma energizing voltage such that a relative decrease of said displacement current is provided after said absolute pulse maximum” as claimed in claim 22 of the issued '944 patent). As to the further limitation of claim 1 “such that modification of properties of said substrate surface is prevented” deemed to be obvious in view of '944 issued patent since the displacement current is controlled during the plasma generation in a manner claimed in claim 22 of the issued '944 patent. As to the further limiting claims as claimed in claims 23, 24, 26, 27 and 29 of the instant application, given, the system claims as claimed in claims 22, 24, 25, 28, 29 and 32-34 of the issued '944 patent, the further limiting claims as claimed in claims 23, 24, 26, 27 and 29 of the instant application would have been deemed to be obvious for no other reason than controlling the energizing voltage such that a relative decrease of the displacement current is provided after the pulse maximum.

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*Allowable Subject Matter*

6. Claims **1-29** would be allowable upon overcoming the double patenting rejection as set forth above in paragraph 3.

*Conclusion*

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

*Correspondence*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ephrem Alemu whose telephone number is (571) 272-1818. The examiner can normally be reached on M-F 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacob Y Choi can be reached on (571) 272-2367. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EA  
11-04-10

/Jacob Y Choi/  
Supervisory Patent Examiner, Art Unit 2821